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Bidirectional Associations between Behavior Problems and Teacher–Child Relationship
Quality in Chinese American Immigrant Children

By

Jennifer Ly

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Doctor of Philosophy

in

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University of California, Berkeley

Committee in charge:

Professor Qing Zhou, Chair
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Professor Susan Holloway

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Abstract

Bidirectional Associations between Behavior Problems and Teacher–Child Relationship Quality in Chinese American Immigrant Children

by

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Doctor of Philosophy in Psychology

University of California, Berkeley

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This study examined the prospective associations between behavior problems and teacher–child relationship quality (TCRQ) in a socio-economically diverse sample of Chinese American first- and second-grade children in immigrant families ($N = 258$). Externalizing and internalizing problems were assessed using parents' and teachers' ratings. Teachers completed a questionnaire measuring TCRQ dimensions of Warmth and Conflict and children completed a questionnaire measuring Closeness. Path analyses were conducted to examine the bidirectional associations between behavior problems and TCRQ, controlling for baseline levels and demographic characteristics. Results indicated that teacher-rated externalizing problems negatively predicted child-rated Closeness, teacher-rated internalizing problems negatively predicted teacher-rated Conflict, and parent-rated internalizing problems negatively predicted teacher-rated Warmth. Although teacher-rated TCRQ did not significantly predict teacher-rated behavior problems, teacher-rated Conflict positively predicted parent-rated externalizing problems. Unexpectedly, child-rated Closeness also positively predicted parent-rated externalizing problems. These findings highlight the importance of assessing TCRQ and children's behavior problems using multiple reporters. The present study also provides support for the transactional relationship between children's behavior problems and TCRQ. Recommendations for school-based interventions with Chinese American children in immigrant families are discussed.

Introduction

Children of immigrants constitute one of the fastest growing groups in the United States, accounting for nearly one-fourth of all children in the United States (Hernandez & Cervantes, 2011). Poverty, the stresses of migration, and the challenges of acculturation (e.g., learning a new language, coping with changes in family roles, and encountering discrimination) can directly and indirectly affect the adjustment and socioemotional functioning of immigrant youth (Perreira & Ornelas, 2011). Although immigrant children are at increased risk for developing physical and mental health problems (Perreira & Ornelas, 2011; Suarez-Orozco & Suarez-Orozco, 2001), other studies have found that immigrant youth are less likely to engage in deviant behaviors (e.g., Portes & Rumbaut, 2001; Rumbaut, 2000) and endorse fewer symptoms of depression (e.g., Juang, Syed, & Takagi, 2007; Robins & Regier, 1991). To date, the literature examining the adjustment of Asian American immigrant youth has focused primarily on adolescent samples and on achievement outcomes (Qin & Han, 2011) rather than the impact of schooling influences on children's behavior and psychological development. In the present study, I aim to address these gaps by examining the interaction between behavioral adjustment and teacher-child relationship quality in a sample of school-aged Chinese American children in immigrant families.

Behavior Problems in Immigrant Youth

Behavior problems can emerge in early childhood and place children at risk for a host of negative developmental outcomes, including academic underachievement, delinquency, mental disorders, and poor social functioning (Achenbach & McConaughy, 1987; Berry & O'Connor, 2010; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Dishion, French, & Patterson, 1995; Fanti & Henrich, 2010; Hofstra, Der Ende, & Verhulst, 2002). Behavior problems are classified into two broad categories, including (1) externalizing behaviors that are aggressive, hyperactive, disruptive, or defiant in nature and (2) internalizing problems that comprise depressed, withdrawn, anxious, and fearful behaviors (Achenbach & Edelbrock, 1978). Children may exhibit problems in either category or present with co-occurring externalizing and internalizing behaviors (Fanti & Henrich, 2010; Kaplan, Crawford, Cantell, Kooistra, & Dewey, 2006). Although behavior problems, both pure and co-occurring, demonstrate moderate stability throughout youth and into adulthood (Fanti & Henrich, 2010; Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998), developmental trajectories are clearly not fixed for all children. Developmental psychopathologists posit that multiple transactional processes, including children's cultural and contextual experiences, combine to mutually influence children's outcomes (Hinshaw, 2013). As such, it is important to gain a better understanding of the normative contexts and processes that jointly contribute to the positive adaptation of children with behavior problems (Baker, Grant, & Morlock, 2008).

Although some studies suggest that immigrant youth are less likely to engage in deviant behaviors (e.g., Portes & Rumbaut, 2001; Rumbaut, 2000) and have lower symptoms of depression (e.g., Juang, Syed, & Takagi, 2007; Robins & Reiger, 1991), other studies report higher rates of psychological, behavior, and social emotional difficulties in immigrant youth compared to their Caucasian counterparts (e.g., Bae & Brekke, 2003; Greenberger & Chen, 1996; Polo & López, 2009; Vega, Khoury, Zimmerman, & Gil, 1995). The inconsistencies across studies are likely to reflect the complex interaction between social, economic, historical,

cultural, familial, school, community, and individual factors in the development of immigrant youth (Zhou, 1997).

With regard to the Asian immigrant population in the United States, which is comprised of individuals originating from Asia and their descendants (Humes, Jones, & Ramirez, 2011), the extant developmental literature has largely focused on examining children's academic and educational achievement (Qin & Han, 2011). The limited research examining the behavior and mental health adjustment of Asian American youth shows substantial within-group heterogeneity (e.g., Sue, Sue, Sue, & Takeuchi, 1995; Takeuchi et al., 2007; Yeh, 2003). However, a growing research base suggests there are high rates of anxiety and depressive symptoms and low levels of self-esteem in Asian American youth (Brown, Meadows, & Elder, 2007; Chun & Sue, 1998; Huang, Calzada, Cheng, & Brotman, 2012; Rhee, Chang, & Rhee, 2003; Song, Ziegler, Arsenault, Fried, & Hacker, 2011). Although there is less empirical evidence that Asian American youth present with high levels of externalizing problems, in one large study of Asian American adolescents in the seventh through twelfth grades, higher levels of aggressive offenses were observed in Asian American youth when compared to their Caucasian counterparts (Choi & Lahey, 2006).

Previous studies examining the adjustment of Asian American youth suggest that teachers play a particularly important role in promoting children's academic engagement and achievement, yet far less is known about the role that teachers play in the behavioral adjustment of youth in this population (Han, 2008; Ly, Zhou, Chen, & Chu, 2012; Qin & Han, 2011). Indeed, a growing body of work suggests that Asian American immigrant youth face a wide range of obstacles at school, including discrimination, peer harassment, and feeling ignored by teachers and other school staff members (Grossman & Liang, 2008; Kao, 1999; Qin, Way, & Mukherjee, 2008; Qin, Way, & Rana, 2008; Rosenbloom & Way, 2004; Watanabe, 1998). Much remains unknown about the impact of school contextual factors on the mental health and psychological adaptation of Asian American youth.

The focus of the present study is on Chinese Americans, who comprise 23% of the Asian population in the United States (Hoeffel, Rastogi, Kim, & Shahid, 2012). Despite vast differences in family structure, socioeconomic status, beliefs, and practices, Chinese Americans share some cultural characteristics, including a high value of education and a high regard for teachers (Ly et al., 2012; Yiu, 2013). In traditional Chinese society, teachers are viewed as one of the most salient influences in a child's life (Stevenson & Stigler, 1992). In addition to transmitting information, Chinese teachers are also responsible for promoting moral and ethical views in their students (Altbach, 1991). Specific to families in mainland China and linked to the one-child policy, teachers are also viewed as responsible for socializing children who do not have the opportunity to interact with siblings in the home setting (Xu, 2010).

Given this conceptualization of teachers as educators, models of morality, and means of socialization, one would expect that teachers would play an instrumental role in the behavioral and psychological adjustment of Chinese American immigrant youth. Consistent with this view, in a sample of Chinese American immigrant high school students, higher levels of school support, a latent factor of students' ratings of attachment to teachers and attachment to school (Bonding to School Questionnaire; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989), were related to lower levels of internalizing problems. In addition, school supportive factors moderated the association between peer victimization and children's internalizing problems (Yeh, Liao, Ma, Shea, Okubo, & Atkins, 2013).

Given that middle childhood is a critical developmental period in which immigrant children are likely to experience exclusion, devaluation, invisibility, discrimination, and racism for the first time (García Coll & Szalacha, 2004), it is important to explore the behavioral adjustment and socialization experiences of Asian immigrant children in this stage of development. Moreover, research on teacher–child relationship quality (TCRQ) and its associations to Asian American children’s behavioral adjustment can expand our limited understanding of the mental health challenges of this growing population and help to inform interventions supporting the healthy development of children in this group (Qin & Han, 2011).

Teacher–Child Relationship Quality and Children’s Development

Based on developmental systems theory (Bronfenbrenner, 1979), the *Contextual Systems Model* (CSM) posits that children develop within dynamic systems that include multiple proximal and distal levels of influence (Good & Weinstein, 1986; Pianta, 1999; Pianta & Walsh, 1996; Sabol & Pianta, 2012). That is, development is characterized as a process that occurs within a context, such that an individual’s characteristics and contexts interdependently shape his or her development (O’Connor, 2010; Pianta & Walsh, 1996). From a CSM perspective, the teacher–child relationship is central to the child’s development and is a product of reciprocal teacher and child characteristics (O’Connor, 2010; Pianta, Hamre, & Stuhlman, 2003). Although teacher–child relationships develop within the context of classrooms and schools, factors within the family system (e.g., family resources) and children’s characteristics (e.g., gender and behavior problems) are also believed to influence TCRQ over time (O’Connor, 2010; Pianta & Walsh, 1996). From a CSM perspective, development is viewed as a reciprocal process, such that children’s relational models may guide their interactions with teachers, while sensitive teachers can also reshape children’s relational models, subsequent behaviors, and future relationships (Sabol & Pianta, 2012).

Consistent with a CSM perspective, studies suggest that the association between children’s behavior problems and TCRQ is transactional (Baker et al., 2008; Leflot, van Lier, Verschueren, Onghena, & Colpin, 2012). First, childhood behavior problems may lead to coercive interaction patterns with teachers (Ladd & Burgess, 1999; LaPointe, 2003), which in turn, places children at further risk for subsequent behavior and academic problems (Buyse, Verschueren, Doumen, Van Damme, & Frederik, 2008; Hamre & Pianta, 2001). Second, although relationships between teachers and children with behavior problems are often characterized by high levels of conflict (Spilt & Koomen, 2009), when children with behavior problems are paired with sensitive teachers, they tend to exhibit fewer negative behaviors over time (O’Connor, Dearing, & Collins, 2011; Rimm-Kaufman et al., 2002). In addition, low teacher-rated TCRQ (i.e., high conflict, low warmth) has been associated with rapid increases in children’s externalizing behavior problems between kindergarten and the third grade (Silver, Measelle, Armstrong, & Essex, 2005). In sum, the empirical and theoretical literature suggests that investigating the transactional or bidirectional relations among behavior problems and TCRQ is necessary to gain a deeper understanding of the complex relations between these variables.

Conceptual models of TCRQ

Teacher-rated TCRQ is typically conceptualized and assessed along two major dimensions, one that is positive (e.g., closeness, warmth, and intimacy) and one that is negative (e.g., conflict and dependency) (Hughes, Gleason, & Zhang, 2005; Pianta, 1992). Empirical

support for a multi-dimensional model of TCRQ (i.e., warmth, intimacy, and conflict) has been found in ethnically diverse samples of elementary school-aged children (Hughes et al., 2005; Ly et al., 2012). With regard to child-rated TCRQ, few researchers have assessed TCRQ from the perspective of students in early elementary school (Hughes, Wu, Kwok, Villarreal, & Johnson, 2012). Child-rated TCRQ has been assessed using a range of measures adapted from other empirically-validated scales of social support (Murray, Murray, & Waas, 2008; Li, Hughes, Kwok, & Hsu, 2012; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). Some studies conceptualize child-rated TCRQ using a unidimensional scale of closeness (e.g., Valiente et al., 2008), whereas others conceptualize child-rated TCRQ along multiple dimensions of conflict, intimacy, and warmth (e.g., Li et al., 2012). More research is needed to understand, conceptualize, and validate measures of child-rated TCRQ.

In the few studies that have considered both teachers' and elementary school-aged students' perspectives of TCRQ, concordance in reports of relationship quality has been mixed. Most of these studies, primarily those with younger children, reveal little agreement in reports of TCRQ (Henricsson & Rydell, 2004; Hughes, Cavell, & Jackson, 1999; Li et al., 2012; Ly et al., 2012; Murray et al., 2008). However, other studies have found significant and moderate correlations between teacher- and child-rated TCRQ. For example, in a study of urban African American students in the third through sixth grades, teacher- and child-rated TCRQ was significantly correlated ($r = .33, p < .01$; Rey, Smith, Yoon, Somers, & Barnett, 2007). In another study of ethnically diverse 7- to 12-year-old children, teacher- and child-rated TCRQ was also significantly correlated ($r = .31, p < .01$; Valiente et al., 2008). The modest to moderate correlations between teachers' and children's ratings of TCRQ suggest that perspectives of TCRQ may differ in substance and structure for teachers and children, arguing for inclusion of both in relevant research (Murray & Zvoch, 2011).

Children's ratings of TCRQ significantly predict a range of school adjustment outcomes, including teacher-rated academic engagement (Li et al., 2012), children's performance on standardized tests of reading achievement (Ly et al., 2012), and child-reported school liking (Murray et al., 2008). Thus, despite the minimal concordance between teacher and student reports of TCRQ in middle childhood, children's perceptions of teacher support may also be important predictors of children's school adjustment and achievement. To my knowledge, there are no known studies assessing the prospective associations among children's ratings of TCRQ and behavior problems in a sample of school-aged children in immigrant families.

Associations between Behavior Problems and TCRQ

Studies investigating the role of school contextual factors and children's development have identified the teacher-child relationship as critical to the school adjustment of children with early behavioral difficulties (e.g., Baker et al., 2008; Hamre & Pianta, 2001; Hughes et al., 1999). Although childhood behavior problems are negatively correlated with TCRQ, research based on compensatory models of risk and resilience suggest that high TCRQ can serve a protective role, buffering children with behavior problems from developing more serious behavior, social, and academic problems (Brendgen et al., 2011; Hamre & Pianta, 2001; Meehan, Hughes, & Cavell, 2003; O'Connor et al., 2011; Silver et al., 2005; Zimmerman & Arunkumar, 1994). As such, it is important to consider both the unidirectional and bidirectional associations between children's behavior problems and TCRQ.

The literature examining the association between behavior problems and TCRQ has primarily focused on the negative impact of children's externalizing problems on TCRQ. Given

that externalizing behaviors are disruptive to classroom instruction, children with externalizing problems may receive more negative attention and behavioral management interventions from teachers (Doyle, 1979). Indeed, classroom observational data suggest that kindergarten teachers are less sensitive and more controlling toward children who exhibit disruptive classroom behaviors (Fry, 1983). The empirical literature has consistently shown a negative association between externalizing problems and TCRQ in cross-sectional (Baker et al., 2008; Henricsson & Rydell, 2004; Ladd & Burgess, 1999; Mantzicopoulos, 2005; Murray & Murray, 2004; Murray & Zvoch, 2011) and longitudinal studies (Jerome et al., 2009).

These findings are further supported by studies of diverse samples of children and adolescents and children's reports of TCRQ. For example, in a cross-sectional study of economically disadvantaged African American youth in the fifth through eighth grades, students with clinically significant externalizing problems reported the lowest levels of trust in the teacher-child relationship. Furthermore, children with clinically significant externalizing problems had significantly lower ratings of teacher-rated closeness and higher ratings of teacher-rated conflict (Murray & Zvoch, 2011). Also, in a sample of kindergarten children from Belgium, Buyse and colleagues (2008) found that children's behavior problems were the most important predictor of teacher-rated TCRQ. Specifically, teacher-rated externalizing problems were significantly and positively associated with teacher-rated conflict, controlling for children's gender, math and language skills, and family SES.

Given that (a) teachers' ratings of relational conflict and (b) children's behavior problems are often difficult to distinguish (Palermo, Hanish, Martin, Fabes, & Reiser, 2007; Silver et al., 2005), Hamre and colleagues (2008) sought to examine these associations more rigorously in a sample of preschool-aged children. Using hierarchical linear modeling to estimate the amount of variability in teacher-rated conflict predicted by teacher-rated behavior problems, results indicated that 53% of the variance in teachers' ratings of conflict was explained by their perceptions of children's behavior problems. Importantly, the authors cautioned that the shared variance between teachers' ratings of conflict and children's behavior problems might be explained by informant bias (Hamre, Pianta, Downer, & Mashburn, 2008). In addition to providing a deeper understanding of the association between teacher-rated TCRQ and children's behavior, this study also underlined the importance of assessing children's behavior problems using multiple informants.

In contrast to externalizing problems that are harmful and disruptive to others, internalizing problems are more intropunitive or harmful to self, and are inherently less observable to others (De Los Reyes & Kazdin, 2005; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000; Thijs & Koomen, 2009). Although previous research has consistently found significant and negative associations between externalizing problems and TCRQ, studies examining the association between internalizing problems and TCRQ have been mixed. Results vary with various investigations finding (a) no significant main effects between internalizing behavior problems and TCRQ (e.g., Jerome et al., 2009; O'Connor et al., 2011), (b) small but significant negative associations (e.g., Henricsson & Rydell, 2004; Ladd & Burgess, 1999), and (c) a surprising positive association between internalizing problems and teacher-rated closeness (Thijs, Westhoff, & Koomen, 2012).

In one rigorous longitudinal study of children from 54 months of age through elementary school, O'Connor and colleagues (2011) failed to find significant main effects regarding internalizing problems and TCRQ. However, children with early internalizing problems (i.e., at 54 months) and low TCRQ (across the first, third, and fifth grades) showed higher levels of

internalizing problems throughout elementary school. Importantly, in the fifth grade, children with early internalizing problems (i.e., at 54 months) and high TCRQ (across the first, third, and fifth grades) had levels of internalizing problems that were comparable to children who had low levels of internalizing problems at 54 months. These findings suggest that high TCRQ may protect children with early internalizing problems from developing trajectories of long-term internalizing problems (O'Connor et al., 2011).

In Thijs and colleagues' (2012) study of TCRQ and teacher-child ethnic congruence in a sample of Dutch and Moroccan elementary school-aged students in the Netherlands, the authors were surprised to find that internalizing problems contributed to higher teacher-rated closeness for ethnic incongruent teacher-child dyads. The authors posited that although behavior problems might impede children from developing warm and supportive teacher-child relationships, children with increased internalizing problems might elicit more sympathetic reactions from their teachers. In addition, the authors suggested that teachers might find it emotionally rewarding to invest in relationships with children who present with an increased need for emotional support and comfort (Thijs et al., 2012). At this time, more research is needed to understand the complex, transactional associations between TCRQ and children's internalizing behaviors.

A recent meta-analysis conducted by Nurmi (2012) provides further support for the role of behavior problems in predicting TCRQ. Using 19 studies to examine the associations between behavior problems and TCRQ, the mean effect size for the associations between externalizing problems and TCRQ was strong for teacher-rated conflict ($r = .57$) and small for teacher-rated closeness and dependency ($r_s = -.19$ and $.27$, respectively). For internalizing problems, the effects were small to medium: closeness ($r = -.20$), conflict ($r = .30$), and dependency ($r = .37$). Finally, in a study that examined the association between TCRQ and co-occurring externalizing and internalizing problems, kindergarten teachers reported feeling the least close to children who presented with both types of behavior problems (Ladd & Burgess, 1999).

At this time, little is known about the longitudinal associations between behavior problems and TCRQ in immigrant children, especially during middle childhood. School-aged children in immigrant families often encounter barriers to education such as exclusion, devaluation, and discrimination (García Coll & Szalacha, 2004). Research with older samples suggests that teachers can play a particularly important role in promoting the positive development of children in immigrant families (Yeh et al., 2013). Yet current work in this area has relied on the same informant of TCRQ and behavior problems, which can contribute to same-source error variance and inflated estimates regarding the associations between TCRQ and children's outcomes (Hamre et al., 2008; Murray & Zvoch, 2011). To address these limitations, in the current study, I use a longitudinal and multiple informant design to rigorously assess the bidirectional associations between children's behavior problems and teacher- and child-rated TCRQ in a school-aged sample of Chinese American children in immigrant families.

Potential Confounding Factors

Child gender. The relation between child gender and behavior problems varies with respect to externalizing versus internalizing problems. During middle childhood, externalizing problems are more commonly observed in boys compared to girls, whereas there are no clear sex differences for internalizing problems (Zahn-Waxler et al., 2000). Additionally, ratings of TCRQ have also been consistently shown to vary by child gender, such that teachers rate warmth or closeness as significantly higher in girls and conflict as significantly higher in boys (e.g., Hamre & Pianta, 2001; Jerome et al., 2009; Murray & Murray, 2004; O'Connor, 2010). Studies

examining gender differences in child-rated TCRQ also suggest a similar trend, with girls reporting higher TCRQ than boys (e.g., Hughes et al., 2012; Valiente et al., 2008; Peguero & Bondy, 2011). Because both behavior problems and TCRQ may vary by child gender, gender should be covaried. Interestingly, in a study examining both children's behavior problems and TCRQ, teachers' ratings of conflict tended to be higher in boys than girls, but after adjusting for teachers' perceptions of children's behavior problems, Hamre et al. (2008) found no gender differences in teachers' ratings of TCRQ.

Generation Status. In studies of immigrant youth in elementary school and through adolescence, generation status has been associated with academic outcomes, such that first-generation immigrants tend to have higher academic achievement scores compared to youth who are second- and third-generation immigrants (Crosnoe & Lopez Turley, 2011; Han, 2008; Kao, 1999; Palacios, Guttmannova, & Chase-Lansdale, 2008). Also, with regard to behavior problems, DeFeyter and Winsler (2009) found that first-generation immigrant preschoolers had the fewest behavior problems compared to second-generation immigrant preschoolers and native-born peers. Within-group analyses of Asian American immigrant youth in the National Longitudinal Study of Adolescent Health (Add Health) and the National Longitudinal Study of Youth (NLSY97) also demonstrated lower rates of delinquency in first-generation adolescents (seventh through twelfth graders), compared to their subsequent generation counterparts (Le & Stockdale, 2011). Thus, it is important to control for generation status when examining the associations between behavior problems and TCRQ.

Family SES (Parental Education and Income). Finally, researchers have found significant negative associations between family demographic characteristics and TCRQ. Specifically, teacher-rated TCRQ is lower for children from more disadvantaged backgrounds, as defined by lower levels of parental education and family income (Birch & Ladd, 1997; Burchinal et al., 2002; Ladd, Birch, & Burgess, 1999; Pianta & Stuhlman, 2004). These results are likely related to previous findings that children from lower SES backgrounds are more likely to be enrolled in classrooms with teachers who are less positive and more directive (Pianta, La Paro, Payne, Cox, & Bradley, 2002) and that children's attitudes towards school may be more negative in highly structured, teacher-directed classrooms (Valeski & Stipek, 2001). Thus, I control for family SES when examining the bidirectional associations between behavior problems and TCRQ.

The Present Study

To my knowledge, no researchers have examined the longitudinal associations between children's behavior problems and TCRQ in a sample of Asian American elementary school-aged children. I plan to redress this situation by examining behavior problems and TCRQ in an immigrant sample with data from a two-wave longitudinal study of socioeconomically diverse Chinese American children, who were in the first and second grades at the time of their first assessment. The primary aims were to examine the prospective relations between parent- and teacher-rated behavior problems and teacher- and child-rated TCRQ, controlling for baseline levels and confounding factors. Specifically, I was interested in testing two sets of hypotheses: (a) children's behavior problems would prospectively predict TCRQ such that children with higher behavior problems would have lower TCRQ (i.e., higher conflict and less warmth and closeness) over time; and (b) TCRQ would prospectively predict children's behavior problems such that lower TCRQ (i.e., lower warmth and closeness and higher conflict) would predict higher behavior problems. I hypothesized that the associations between children's behavior

problems and TCRQ would be stronger if teachers reported both constructs than if the two constructs were collected from different reporters. The associations between TCRQ and behavior problems were also hypothesized to be stronger for externalizing problems compared to internalizing problems.

Method

Participants

Participants were recruited from a major northwestern metropolitan area in the United States for a larger longitudinal study on Chinese American children in immigrant families. The present sample included 258 elementary school-aged children and their parents and teachers. Children were in the first ($n = 126$, 48.8%), second ($n = 129$, 50.0%), and third ($n = 3$, 1.2%) grades. The mean age was 7.4 years ($SD = .71$, range = 5.8 to 9.1 years) and about half of the children ($n = 134$, 52.9%) were boys. Sixty-one (23.6%) children were born outside of the United States (first-generation).

Family characteristics. The majority of parents in the present sample were born outside of the United States, with 68.8% of fathers born in mainland China, 8.6% in Hong Kong, 3.1% in Taiwan, 15.2% in “Other,” and 4.3% in the United States. Similarly, 77.3% of mothers were born in mainland China, 9.0% in Hong Kong, 2.7 % in Taiwan, 9.8% in “Other,” and 1.2% in the United States. On average, fathers and mothers had lived in the United States for 15.1 and 11.1 years, respectively. In this sample, 91.4% of parents were either married to or living with a partner while 8.6% were single (never married), widowed, divorced, or separated. With regard to parental employment, 85.3% of fathers and 57.0% of mothers reported full-time employment, 4.3% of fathers and 14.3% of mothers reported part-time employment, and 10.4% of fathers and 28.7% of mothers reported that they were unemployed or described themselves as homemakers.

In the present sample, 14% of fathers and 11.1% of mothers reported having fewer than 10 years of primary and secondary education, whereas 12.8% of fathers and 7.6% of mothers completed some graduate work or held a graduate degree. Parents’ highest levels of education were slightly higher than a high school education with means of 13.2 years ($SD = 3.00$) for fathers and 13.0 years ($SD = 2.47$) for mothers. To compute a composite score for the highest level of education attainment for both parents, maternal and paternal education levels were averaged.

Based on previous research suggesting that parental educational attainment and family income are important indicators of household SES, indicators of family SES included the parental education composite and the family’s per capita income (Shavers, 2007). To compute a family SES composite, maternal and paternal education levels were averaged and standardized scores of parental education were averaged with per capita income. Per capita income was calculated by dividing family income by the number of individuals living in the household (Datta & Meerman, 1980.) In the present sample, families’ per capita income for the past year ranged from \$625 to \$50,000 ($M = \$11,608.68$; $SD = \$8309.17$). Although not included as an indicator of SES in data analyses, 57.3% of children in the present sample were eligible for free or reduced school lunch.

Teacher characteristics. At Wave 1 (W1), 126 teachers from over 80 public and private elementary schools completed teacher questionnaires that assessed TCRQ and children’s behavioral adjustment. At Wave 2 (W2), 150 teachers completed teacher questionnaires. At both waves, teachers rated between one and nine students. The majority of teachers at W1 ($n = 98$,

80%) and W2 ($n = 125$, 83.3%) rated their relationship with a single student. Additional teacher characteristics were not available at W1.

At W2¹, 68.1% of teachers were female. With regard to the highest level of education completed, 8.7% of teachers reported receiving a Bachelor's degree, 43.4% reported completing some graduate work, 45.4% reported receiving a Master's degree, and 2.0% reported receiving a Doctorate degree. On average, teachers had 14.8 years of experience ($SD = 9.38$, range = 1 to 39 years). With regard to ethnicity, 45.9% identified as Caucasian, 42.3% identified as Asian, 4.6% identified as Hispanic or Latino, 3.6% identified as African American, 0.5% identified as American Indian or Alaskan Native, and 3.1% identified as Mixed Ethnicity.

Measures

To assess study constructs, this study employed a multiple reporter (i.e., parent, teacher, and child) approach. With the exception of the demographic questionnaire, the Teacher Relationship Inventory, and the adapted version of the Student–Teacher Relationship Scale (STRS; Pianta, 2001; see Valiente et al., 2008), the measures included in the present study were previously used with Chinese or Chinese American samples. In translating the demographic questionnaire and the child-rated STRS, I followed the strategies recommended by Kim, Nair, Knight, Roosa, and Updergraff (2009). For more information about the translation of the child-rated STRS for use with the present sample, see Ly et al. (2012).

Demographic Questionnaire. Information regarding demographic characteristics and migration history was obtained through a parent-completed questionnaire. This questionnaire was adapted from a similar measure used in a large longitudinal study of Mexican American immigrant families (Roosa, Liu, Torres, Gonzales, Knight, & Saenz, 2008). Parents responded to questions about family income, household size, child gender, child generation status, child grade level, employment status, highest level of education attained, and country of birth for themselves and their partners (when applicable). Questionnaires were available in both English and Chinese.

Teacher Characteristics. Information regarding teacher characteristics was obtained through teacher-completed questionnaires. Teacher characteristics are available for W2 only. Teachers responded to demographic questions about gender, race, highest level of education attained, and years of experience. Teachers' educational attainment was scored as follows: (1) Bachelor's degree, (2) Some graduate work, (3) Master's degree, and (4) Doctoral degree. Teaching experience was scored as a continuous variable to reflect the numbers of years the teacher had taught.

Behavior problems. Externalizing and internalizing problems were assessed using parent and teacher reports on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) and the Teacher Report Form (TRF, Achenbach & Rescorla, 2001), respectively. The CBCL and TRF include 118 items that describe a broad range of child behavioral and emotional problems. The externalizing scale includes the aggressive and rule-breaking behaviors subscales. The internalizing scale includes the anxious/depressed, withdrawn/depressed, and somatic complaints subscales. For all items, parents and teachers reported on how well each item described the child "currently or within the last 6 months" on a Likert-type scale ranging from (0) *not true* to (2) *very true or often true*.

For the present study, parents completed the CBCL during a lab assessment and teachers completed the TRF by mail. Previous research indicates that the CBCL and TRF have good test-

¹ The descriptive statistics on teacher characteristics were based on student-level data; some teachers were included more than once in the analyses.

retest reliability and concurrent and predictive validity (Achenbach & West, 1991). Furthermore, the CBCL and TRF have demonstrated good internal consistency in a previous study of Chinese children in Hong Kong (Leung et al., 2006). In the present sample, the internal reliability coefficients for externalizing problems were .85 and .87 on the CBCL and TRF, respectively. For internalizing problems, the internal reliability coefficients were .85 and .82 on the CBCL and TRF, respectively.

Teacher-rated TCRQ. Developed from the Network of Relationships Inventory (NRI; Buhrmester & Furman, 1987), the Teacher Relationship Inventory (TRI; Hughes, Cavell, & Willson, 2001) is a 22-item questionnaire measuring a teacher's perceptions of relationship quality with a specific student. For the present study, I used two subscales: (a) Conflict (6 items; e.g., "This child and I often argue with each other") and (b) Warmth (13 items; e.g., "I find I am able to nurture this child"). Teachers rated the items using a Likert-type scale ranging from (1) *not true at all* to (5) *very true*.

As reported in Ly et al. (2012), confirmatory factor analyses using W1 data from the present sample supported the original factor structure of the TRI in Chinese American children. Similar results were also obtained with W2 data. Although the TRI has an Intimacy factor (3 items; e.g., "This child shares his or her private feelings with me"), I did not include this subscale in the present study because preliminary analyses indicated that teacher-rated Intimacy was mostly unrelated to children's behavior problems. This is consistent with previous studies of TCRQ, which question the validity of ambiguous dimensions, such as Dependency, in older elementary and middle school-aged students (Ang, 2005; Durkin, 1995). The alpha reliabilities for the teacher-rated Warmth composite were .94 at both W1 and W2, and the alphas for the teacher-rated Conflict composites were .85 (W1) and .92 (W2).

Child-rated TCRQ. Children rated TCRQ with their current classroom teachers using an adapted version of the Student-Teacher Relationship Scale (STRS; Pianta, 2001). The adapted version of the STRS is an 18-item questionnaire that assesses the degree of closeness that children perceive with teachers and renders one total composite score of Closeness (Valiente et al., 2008). In the present study, children responded to the adapted STRS in their preferred language (English, Cantonese Chinese, or Mandarin Cantonese). The majority of children in the present sample (over 90% at both waves) completed the questionnaire in English, whereas a small number of children completed the questionnaires in Mandarin or Cantonese Chinese. The examiner read each item to the child and provided a visual aid indicating the Likert-type scale ranging from (1) *not at all* to (3) *a lot of the time*. Children were asked to point to the scale to indicate the extent to which they agreed with each statement. Sample items from the adapted STRS include, "Does your teacher make you feel better if someone is bothering you?", "Does your teacher care about how you do in school?", and "Does your teacher tell you you're good at doing things?".

As reported in Ly et al. (2012), a confirmatory factor analysis using W1 data from the present sample provided support for the one-factor structure of child-rated TCRQ. In W1 preliminary analyses, one item ("Does your teacher like other kids in your class better than you?") did not load significantly on the latent factor. It is possible that (a) children had difficulty responding to the negatively worded item or (b) they were unable to compare the quality of their teacher-child relationship to that of their peers'. After dropping this item, the single-factor model provided a good fit for the data. Similarly, the single-factor model fit well with W2 data, $\chi^2 (df = 71, N = 239) = 100.60, p = .01, CFI = .966, SRMR = .042, RMSEA = .04$. All of the model-estimated loadings for the individual items were significant and in the positive direction with

standardized loadings ranging from .39 to .73. Based on this result, a composite score of child-rated Closeness was computed by averaging the corresponding item scores. The alpha reliabilities for the 17-item scale in the present sample were .87 at W1 and .88 at W2.

Procedure

Recruitment. Recruitment criteria for the larger study are provided in Ly et al. (2012). In brief, Chinese American immigrant families were recruited by using a variety of strategies, including (a) on-site recruitment fairs at shopping centers and grocery stores within Asian and Chinese American communities (63.6%), (b) distribution of flyers at public and private schools with a large proportion of Asian American students (17.4%), and (c) referrals from community organizations (e.g., afterschool programs, churches, nonprofit organizations) serving Chinese Americans (19.0%).

Assessment. This study involved an initial assessment at W1 and a follow-up assessment between 1.5 and two years later. At both waves, data were collected from parents (questionnaires), teachers (questionnaires), and children (interviews and standardized achievement testing). Trained bilingual undergraduate and/or graduate students conducted assessments in the preferred language (English, Mandarin Chinese, or Cantonese Chinese) of parents and children. Before conducting the assessment, examiners discussed the voluntary and confidential nature of the study with parents and children, and parental consent and child assent were obtained. Furthermore, examiners assured children that their teachers and parents would not have access to their ratings. After completing the assessment, children were given two toys and parents and teachers were paid for their participation. All procedures had been approved by the Institutional Review Board at the authors' institution.

Assessment. At each wave, children and parents participated in a 2.5-hour laboratory assessment that included the measures described above plus additional tasks not included in the present study. After the laboratory assessment and with parental permission, the research staff contacted children's classroom teachers to ask them to complete teacher questionnaires by mail.

Results

Descriptive statistics are presented in Table 1. Variables were screened for univariate normality. Using West, Finch, and Curran's (1995) cutoffs of 2 and 7 (absolute values) for high skewness and high kurtosis, respectively, teacher-rated externalizing problems at both waves and teacher-rated Conflict at W2 were positively skewed.

Correlations between Family Demographic Factors and Study Variables

To examine the associations between child and family demographic factors at W1 and behavior problems and TCRQ at W1 and W2, zero-order correlations were computed. A correlation matrix among all study covariates and variables is presented in Table 2. Consistent with previous studies and with the exception of parent-rated externalizing problems at W2, parents and teachers rated boys as higher in externalizing behaviors than girls across both assessments. In addition, teachers rated their relationships with girls as higher in Warmth and lower in Conflict compared to their relationships with boys. Child gender was unrelated to child-rated Closeness at W1, but at W2, children's ratings of Closeness were higher for girls than boys. With the exception of the negative correlation between W1 child grade level and W2 teacher-

rated Conflict, children's generation status and grade level were largely unrelated to behavior and TCRQ variables.

With regard to W1 family demographic factors and study variables, W1 maternal education level was negatively correlated with W1 parent-rated internalizing problems. Surprisingly, paternal education level and family per capita income at W1 were positively correlated with teacher-rated externalizing problems and teacher-rated Conflict at W2. Based on these patterns of correlations, gender, grade level, generation status, and family SES were included as covariates in subsequent SEM analyses that were conducted to test this study's hypotheses.

Cross-Reporter Correlations on Ratings of TCRQ and Behavioral Problems

Given this study's multiple informant assessment approach, it is important to address the degree of association between ratings of behavior problems and TCRQ across reporters. With regard to ratings of children's behavior problems, the cross-sectional correlations between parents' and teachers' reports of externalizing problems at both waves were positive and medium in effect size. With regard to internalizing problems, the cross-sectional correlations between parent- and teacher-rated internalizing problems at both waves were positive and small in effect size. Although different measures were used to assess teacher- and child-rated TCRQ, I expected to find positive correlations between child-rated Closeness and teacher-rated Warmth and negative correlations between child-rated Closeness and teacher-rated Conflict at both waves. Contrary to this expectation, at W1, child-rated Closeness was not significantly correlated with teacher-rated Conflict or teacher-rated Warmth. However, children's and teacher's ratings of TCRQ were small and significantly correlated in the expected directions at W2, such that child-rated Closeness was negatively correlated with teacher-rated Conflict and positively correlated with teacher-rated Warmth at W2.

Path Analysis: Testing the Bidirectional Relations between Behavioral Problems and TCRQ

To test the hypothesized bidirectional relations between behavior problems and TCRQ, I tested two autoregressive path analysis models, one for TCRQ and parent-rated children's behavior problems (Figure 1) and one for TCRQ and teacher-rated children's behavior problems (Figure 2). Because I hypothesized that the relations between behavior problems and TCRQ would differ between parents' and teachers' ratings of behavior problems, I tested these associations in two separate models. Both models included (a) autoregressive paths predicting W2 behavior problems or TCRQ from the corresponding W1 variables; and (b) cross-time paths from W1 behavior problems to W2 TCRQ and from W1 TCRQ to W2 behavior problems. Child and family demographic variables (i.e., child gender, child generation status, child grade level, and family SES) on all W2 behavior problem and TCRQ variables were covaried in the models.

Children were clustered into classes because some teachers ($n_s = 31$ or 24.6% at W1, and 25 or 16.7% at W2) completed questionnaires for more than one child. I computed the intraclass correlations (ICCs) by teacher for study variables, and the ICCs ranged from .04 to .20 for W1 teacher-rated variables and from .00 to .70 for W2 teacher-rated variables. However, all design effects (i.e., $[\text{average cluster size} - 1] \times \text{ICC}$) were less than 2. When the design effect is below 2, there is no advantage to using multilevel analyses and no danger of bias from more common statistical procedures (Muthén & Satorra, 1995). Therefore, I tested my hypotheses using the single level (rather than multilevel) path analysis approach.

Because of the presence of nonnormal variables, the models were tested using maximum likelihood estimation with robust standard errors (MLR) and mean-adjusted chi-square statistic tests in Mplus 5.2 (Muthén & Muthén, 1998-2007). Additionally, following Cole and Maxwell's (2003) methods for controlling shared method variance, error variances rated by the same reporter within and across time were allowed to be correlated if doing so significantly improved the overall model fit (e.g., parents' reports of behavior problems and child-rated TCRQ).

Based on Hu and Bentler's (1999) cutoff criteria of comparative fit index ($CFI \geq .95$, standardized root-mean-square residual ($SRMR \leq .08$), and a root-mean-square error of approximation $\leq .06$, the model for parent-rated behavior problems (Figure 1) fit the data well, $\chi^2(df = 55, Ns = 205) = 406.098, p < .001, CFI = .985, SRMR = .036$, and $RMSEA = .037$. All of the autoregressive paths were significant and in the positive directions, suggesting that there is cross-time consistency in parent-rated externalizing and internalizing problems and teacher- and child-rated TCRQ. With regard to the effects of covariates, family SES at W1 was a significant and positive predictor of child-rated Closeness at W2. Moreover, child gender significantly predicted W2 TCRQ such that compared to boys, girls had higher ratings of teacher-rated Warmth and child-rated Closeness and lower ratings of teacher-rated Conflict.

With regard to the cross-time relations between parent-rated behavior problems and TCRQ (Figure 1), controlling for the effects of demographic variables and the autoregressive paths, (a) W1 parent-rated internalizing problems significantly and negatively predicted W2 teacher-rated Warmth, (b) W1 teacher-rated Conflict significantly and positively predicted W2 parent-rated externalizing problems, and (c) W1 child-rated Closeness significantly and positively predicted W2 parent-rated externalizing problems. Although not a part of this study's central research questions, significant cross-time relations were found between teacher-rated Conflict and Warmth, teacher-rated Warmth and child-rated Closeness, and parent-rated internalizing and externalizing problems. Specifically, W1 teacher-rated Conflict significantly and negatively predicted W2 teacher-rated Warmth. Moreover, W1 teacher-rated Warmth significantly and positively predicted W2 child-rated Closeness. In addition, W1 parent-rated internalizing problems significantly and positively predicted W2 parent-rated externalizing problems.

The bidirectional model for teacher-rated behavior problems also fit the data well (see Figure 2), $\chi^2(df = 55, Ns = 251) = 450.132, p < .001, CFI = .958, SRMR = .053$, and $RMSEA = .048$. With the exception of the autoregressive path for teacher-rated externalizing problems (which was not significant), all of the autoregressive paths were significant and in the positive directions. The effects of covariates were similar to those in Figure 1: child gender significantly predicted parent-rated behavior problems and TCRQ such that compared to boys, girls scored higher on children's ratings of Closeness and teachers' ratings of Warmth, and lower on teacher's ratings of externalizing problems and Conflict. In addition, in the teacher-rated model (Figure 2), child gender significantly predicted teacher's ratings of internalizing problems, such that boys were rated to have more internalizing problems than girls. Of note, I found two significant cross-time associations between behavior problems and TCRQ. Specifically, W1 teacher-rated internalizing problems significantly and negatively predicted W2 teacher-rated Conflict and W1 teacher-rated externalizing problems significantly and negatively predicted W2 child-rated Closeness, controlling for demographic variables and W1 TCRQ variables.

For the two path models described above, I also tested for moderation by child generation status, family SES (categorized by a median-split on the continuous SES index), and child gender. Using multiple-group path analysis, I tested whether the path coefficients differed

significantly by groups by computing the chi-square difference statistic comparing the constrained and the unconstrained models. There was no evidence of moderation by child generation status or family SES. With regard to child gender, for both the parent- and teacher-rated models, gender was not a significant moderator for cross time associations between behavior problems and TCRQ. However, in the model using parents' reports of children's behavior problems (Figure 1), I found that generation status significantly and negatively predicted parent-rated externalizing behaviors in girls, but not boys. For the model using teacher's reports of children's behavior problems (Figure 2), I found significant effects for W1 family SES positively predicting both W2 teacher-rated externalizing problems and W2 teacher-rated Conflict for boys, but not for girls.

Discussion

To my knowledge, this is the first study to prospectively examine the bidirectional associations between behavior problems and TCRQ in a sample of school-aged Chinese American children in immigrant families. Results extend previous findings that children's development is shaped by transactional processes, as I found support for bidirectional associations between children's behavior problems and TCRQ, controlling for demographic variables and baseline levels. The specific associations between behavior problems and TCRQ in the present sample differed by category of behavior problems (externalizing vs. internalizing), dimension of TCRQ (Conflict, Warmth, or Closeness), reporter of behavior problems (teacher vs. parent), and reporter of TCRQ (teacher vs. child).

Behavior Problems as a Predictor of TCRQ

The design of the present study allowed me to examine the associations between behavior problems and TCRQ by informant, category of behavior problems, and dimension of TCRQ, while controlling for demographic variables and prior levels of TCRQ. Given that previous research has primarily assessed these constructs concurrently (e.g., Baker et al., 2008; Buyse et al., 2008; Murray & Zvoch, 2011), my prospective study provided a more stringent test of the direction of effects, which could partially explain the relatively fewer number of significant findings in the present study. First, the results of this study were inconsistent with previous research and my hypothesis that children's externalizing problems would negatively predict teacher-rated TCRQ. On the other hand, as expected, W1 teacher-rated externalizing problems were significantly and negatively associated with W2 child-rated Closeness, controlling for demographic variables and prior levels of TCRQ. Thus, although children's externalizing problems, as rated by teachers, are not associated with subsequent teacher-rated TCRQ, they modestly predict children's perceptions of closeness in the teacher-child relationship over time. Given that externalizing problems are generally low in samples of Chinese American youth (Chang, Morrissey, & Koplewicz, 1995), this finding suggests that it is important for teachers to provide higher levels of emotional support to Chinese American children with a history of externalizing problems.

The associations observed between internalizing problems and TCRQ were mixed. First, parents' ratings of children's internalizing problems prospectively and negatively predicted teacher-rated Warmth. In contrast, an opposite pattern was found for teachers' ratings of children's internalizing problems, such that teacher-rated internalizing problems prospectively and negatively predicted teacher-rated Conflict. That is, and contrary to my hypotheses, when

teachers rated children as higher in internalizing problems, these children tended to have less conflict in their relationships with teachers over time. It is noteworthy that all of the children in this study had different teachers at W1 and W2, so it is unlikely that the associations between W1 teacher-rated behavior problems and W2 teacher-rated TCRQ were due to common reporter effects. Although puzzling, such findings might be explainable, at least in part, by differences in parents' and teachers' expectations of internalizing problems in this Chinese American sample of children. Previous research suggests that teachers view Asian American students as "model students," who are respectful, quiet, introverted, and diligent (Chang & Demyan, 2007; Schneider & Lee, 1990; Yamamoto & Li, 2012; see especially Chang & Sue, 2003). Thus, it is possible that teachers' ratings of internalizing problems reflected biases or stereotypes of Asian American youth. In addition, given that internalizing problems are not outwardly disruptive in nature, it is not surprising that teachers' ratings of children's internalizing problems would predict lower levels of teacher-rated Conflict over time. Furthermore, it is also common for children with internalizing problems to develop increased social withdrawal and decreased interest in engaging socially with others (Chen & Li, 2000; Harrington, 1993), potentially explaining why parents' ratings of internalizing problems at W1 also predicted lower levels of teacher-rated Warmth at W2.

TCRQ as a Predictor of Behavior Problems

Based on the CSM perspective that TCRQ shapes children's behavior and development, my second hypothesis was that TCRQ would prospectively predict children's behavior problems, controlling for demographic variables and prior levels of behavior problems. In the teacher-rated model (Figure 2), however, I was surprised to find that there were no significant cross-time associations between W1 TCRQ variables and W2 teacher-rated behavior problems. In the parent-rated model (Figure 1), teacher's ratings of Conflict and children's ratings of Closeness at W1 predicted higher levels of parent-rated externalizing problems at W2. The finding that teacher's ratings of Conflict prospectively predicted parent-rated externalizing problems extends previous research that was limited by same source reporter effects (e.g., Baker et al., 2008; Buyse et al., 2008; Hamre & Pianta, 2001; Silver et al., 2005) and generalizes the association between teacher-rated Conflict and subsequent externalizing problems to my sample of Chinese American children in immigrant families.

On the other hand, the finding that W1 child-rated Closeness predicted W2 parent-rated externalizing behaviors was unexpected. Although there is no straightforward explanation for this finding, it is possible that children who perceive higher levels of support and responsiveness from their teachers at W1 would expect higher levels of attention or care from their parents at W2. Previous research suggests that teacher-rated TCRQ decreases as children move beyond the early elementary school grades (Jerome et al., 2009). As children transition to later grades and teachers place a greater emphasis on classroom instruction, children who are accustomed to higher levels of closeness in the classroom might engage in increased externalizing, or negative attention-seeking behaviors, at home.

Findings Related to Demographic Characteristics

It is important to note that demographic variables were largely unrelated to TCRQ and children's behavior problems. With the exception of the expected negative association between family SES and child-rated Closeness, TCRQ and children's behavior problems did not appear to vary by family SES or generation status in this sample. This finding is consistent with the

achievement literature in Asian American immigrant youth, which suggests that risk factors, such as low SES and poor student learning environments, do not affect the academic trajectories of Asian immigrant children in the same manner as native-born youth (Chao, 2001; Chen & Zhou, 2013; Han, 2008). Consistent with these findings, previous literature highlights the role of culturally-specific protective factors, such as the maintenance of one's heritage culture, high family cohesiveness, or active coping patterns, in promoting the resiliency of Asian immigrant youth (Zhou et al., 2013). At this time, more research is needed to identify the specific asset and protective factors that might explain the weak associations between demographic variables and behavior problems/TCRQ in Chinese American youth in immigrant families.

Furthermore, although there was no evidence of moderation of TCRQ-behavior problem linkages by child gender, gender was a significant moderator of associations between demographic variables and children's behavior problems. Specifically, generation status was negatively associated with parent-rated externalizing behaviors in girls, but not boys. Previous research suggesting an "immigrant advantage" in which first-generation children present with lower levels of academic and behavior problems (e.g., DeFeyter and Winsler, 2009; Palacios et al., 2008; Le & Stockdale, 2011) has not examined gender as a moderator. Based on this study's results, it is possible that this phenomenon only applies to girls. In addition, W1 family SES significantly and positively predicted W2 teacher-rated externalizing problems and W2 teacher-rated Conflict for boys, but not for girls. Because boys are at increased risk for developing externalizing behavior problems and are rated as having lower TCRQ (i.e., higher Conflict, lower Warmth), the negative impact of low SES on children's behavior and TCRQ may be greater for boys compared to girls (Birch & Ladd, 1997; Zahn-Walxer, 2000). Given boys' increased risk for academic and behavior problems, future research with immigrant populations should explore the potential role of gender as a moderator between children's demographic characteristics and adjustment (Cooper & Farran, 1998; Silver et al., 2005; Zahn-Waxler, 2000).

Limitations

The results of this study should be interpreted in the context of its limitations. First, this sample included children, families, and teachers from a major metropolitan area with a large Chinese immigrant population. Although findings may not generalize to all Chinese Americans and other Asian immigrant youth, the sample composition allowed for exploration of the unique and bidirectional associations between behavior problems and TCRQ in this historically understudied population. Results raise important research questions regarding the transactional associations between TCRQ and behavior problems in a heterogeneous sample of Chinese American children and families.

Second, this study's measure of child-rated TCRQ assessed only the general construct of overall TCRQ. Previous research suggests that there are both positive and negative dimensions of child-rated TCRQ and when the same items are administered to both teachers and children, children's ratings of TCRQ are not redundant with teachers' ratings (Li et al., 2011). To develop a better understanding of the bidirectional associations between TCRQ and behavior, investigators should also assess negative aspects of the teacher-child relationship from the child's perspective. Furthermore, future research would benefit from incorporating naturalistic observational methods to capture a more complete picture of the reciprocal relations between TCRQ and children's behavior problems.

Third, I did not include a child self-report measure for children's behavior problems. Although self-reports of children's behavior problems are difficult to obtain and are often

incongruent with parents' and teachers' reports, previous studies suggest that evaluating internalizing problems using children's reports may provide a more comprehensive understanding of children's emotional functioning and internal states (Mesman & Koot, 2000; Youngstrom & Strouthamer-Loeber, 2000). Consistent with this view, previous research has shown that children's reports of anxiety in the first grade are stable and predict adaptive functioning in the fifth grade (Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam, 1995). Furthermore, assessing children's reports of behavior problems is also important because these ratings are more likely to reflect behavior problems that occur across a variety of settings and situations, such as at home, at school, and with peers (Lau, Garland, Yeh, McCabe, Wood, & Hough, 2004).

Finally, the current study spanned 1.5 to two academic years at W2 follow-up, which may be too narrow a window to detect developmental changes and the effects of children's behavior problems on TCRQ, and vice versa (Hughes et al., 2012; Malecki & Demaray, 2003). Exploring relevant associations across elementary school to middle school, using at least three waves of data, can provide a more stringent test of this study's hypotheses.

Study Strengths and Implications for Practice

Despite these limitations, this study is significant in its use of multiple informants to assess social processes and behavior problems, which (a) provides a more robust and valid method of assessing social relationships and (b) reduces the likelihood of informant bias. Given that the specific associations between category of behavior problems and dimension of TCRQ varied across reporters (e.g., teacher-rated internalizing problems predicted lower levels of teacher-rated Conflict, whereas parent-rated internalizing problems predicted lower levels of teacher-rated Warmth; teacher-rated externalizing problems did not predict teacher-rated TCRQ, whereas teacher-rated externalizing problems predicted child-rated Closeness), this study highlights the importance of assessing both TCRQ and behavior problems using multiple reporters.

In addition, the present study and its prospective design extended previous tests of transactional models between behavior problems and TCRQ to Chinese American school-aged children in immigrant families. Of note, these findings lend further support to the negative impact of children's behavior problems on both teacher- and child-rated TCRQ. Although previous research suggests that externalizing problems are more strongly associated with poorer school adjustment, including low TCRQ, these results indicate that internalizing problems are stronger predictors of subsequent behavior problems and lower TCRQ in my sample of Chinese American children in immigrant families. Findings thus underscore the vulnerability that Chinese American children experience with regard to internalizing behavior problems.

The results may have several important implications for interventions targeting students in Asian immigrant families, especially those from Chinese American backgrounds. First, our findings highlight the importance of providing emotional and psychological support services to Chinese American students with behavior problems, especially those with internalizing problems that may not be recognized as signs of psychological distress in this population. Given that (a) Asian American youth with internalizing problems are less likely to be identified and referred for school-based mental health assessments and interventions and (b) Asian American families are less likely to access and utilize mental health care services (Chang & Sue, 2003; Gudiño, Lau, Yeh, McCabe, & Hough, 2009; Guo, Kataoka, Bear, & Lau, 2013; Huang et al., 2012), it is important for practitioners to form partnerships with Asian communities to engage families in psychological services for depressed and anxious youth. Previous research suggests that

providing interventions within pediatric health and school settings could reduce stigma related to mental health care access in this population (Huang et al., 2012).

Furthermore, the finding that teacher-rated Conflict and child-rated Closeness positively predicted children's externalizing problems suggests that it is important for administrators and school psychologists to consider interventions at the teacher-child level. Specifically, it may well be that it is more important for school-based interventions to reduce conflict between teachers and children than to promote warmth and closeness within the teacher-child relationship. Although few school-based interventions focus on strengthening TCRQ between teachers and children, the limited research suggests that classroom-based interventions are effective at decreasing children's externalizing problems (Driscoll, Wang, Mashburn, & Pianta, 2011). For example, Driscoll and Pianta (2010) demonstrated that children who engaged in 18 one-on-one non-directive play sessions with their teachers had lower conduct problems compared to waitlist control subjects. Because teachers' views about students and their home cultures shape their engagement with children (Lareau, 2003; Yamamoto & Li, 2012), it is also important for school-based interventions to consider how teachers' expectations regarding immigrant youth may impact their interactions with students.

At this time, more research is needed to understand the underlying mechanisms between internalizing behavior problems and TCRQ. Future studies examining the moderating effect of TCRQ on the development of subsequent behavior problems in samples of Chinese immigrant children with high levels of internalizing behavior problems is necessary. Although I did not directly explore the protective role of high TCRQ on subsequent behavior problems, previous research suggests that developing a close bond with teachers has a moderating effect on anxiety and depressive symptoms related to peer victimization and parent-child conflict (O'Connor et al., 2011; Wang, Brinkworth, & Eccles, 2013; Yeh et al., 2013). Given that high TCRQ has been linked to improving children's sense of school belonging and connection to the United States society, it would be beneficial for schools to provide children from immigrant families, including those from Chinese American backgrounds, with increased opportunities to develop supportive relationships with their teachers (Trickett & Formoso, 2008; Yeh et al., 2013).

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Table 1.

Descriptive statistics for behavior problems and TCRQ variables at Wave 1 and Wave 2

Variable	Wave 1					Wave 2				
	<i>N</i>	Mean	<i>SD</i>	Skewness	Kurtosis	<i>N</i>	Mean	<i>SD</i>	Skewness	Kurtosis
Externalizing Problems (P)	253	4.82	5.09	1.20	0.60	243	4.50	5.00	1.60	2.48
Internalizing Problems (P)	253	3.97	4.61	1.84	3.99	243	3.68	4.20	1.69	3.36
Externalizing Problems (T)	214	2.4	4.29	2.48	6.34	218	1.93	3.67	2.51	6.38
Internalizing Problems (T)	214	3.69	4.30	1.70	3.42	218	3.37	4.48	1.95	3.69
TCRQ Conflict (T)	206	1.48	0.70	1.92	3.52	209	1.33	0.58	2.41	6.05
TCRQ Intimacy (T)	204	2.22	1.00	0.49	-0.79	208	1.96	0.88	0.77	-0.16
TCRQ Warmth (T)	206	4.27	0.70	-1.13	-0.56	209	4.10	0.72	-1.02	-0.86
TCRQ Closeness (C)	256	2.26	0.35	-0.30	-0.11	239	2.16	0.40	-0.41	-0.08

Note. *SD* = standard deviation, TCRQ = teacher-child relationship quality, T = teacher report, C = child report.

Table 2. Zero-order correlations among variables.

Variable	1	2	3	4	5	6	7	8	9	10
1. Child Gender ^a	--									
2. Generation Status ^b	-.06	--								
3. Grade ^c	-.14*	.02	--							
4. Mother's education	-.04	.11	-.08	--						
5. Father's education	-.01	.14*	.00	.58***	--					
6. Per capita Income	-.02	.24***	-.06	.55***	.56***	--				
7. EXT-W1 (P)	.14*	-.08	-.05	-.08	-.05	-.08	--			
8. EXT-W2 (P)	.11	-.08	-.08	-.03	-.07	-.01	.57***	--		
9. EXT-W1 (T)	.18**	.01	.07	-.05	-.01	.03	.24***	.20**		
10. EXT-W2 (T)	.31***	.09	-.01	.07	.14*	.17*	.30***	.32***	--	
11. INT-W1 (P)	-.04	-.01	.01	-.14*	-.07	-.07	.68***	.46***	.12	
12. INT-W2 (P)	.00	.02	.01	-.02	-.09	.00	.39***	.63***	.12	.21**
13. INT-W1 (T)	-.03	.11	.06	.00	.02	.02	.21**	.15*	.33***	.10
14. INT-W2 (T)	.09	.09	.09	.04	.05	.06	.11	.08	.12	.37***
15. CONF-W1 (T)	.26***	-.03	.00	.06	.05	.07	.10	.17*	.77***	.43***
16. CONF-W2 (T)	.33***	.09	-.16*	.12	.17*	.18*	.20**	.29***	.34***	.77***
17. WARM-W1 (T)	-.23**	.05	.00	-.01	.04	.00	-.14*	-.14*	-.50***	-.22**
18. WARM-W2 (T)	-.29***	-.09	-.06	.07	-.11	-.03	-.19**	-.12	-.35***	-.54***
19. CLOSE-W1 (C)	-.07	.01	-.09	-.02	.03	-.05	.03	.15*	-.14*	-.04
20. CLOSE-W2 (C)	-.22**	-.09	-.01	-.06	-.07	-.09	-.04	.07	-.25***	-.11

Note. The *ns* for the correlations ranged from 199 to 256; EXT = externalizing problems; INT = internalizing problems; CONF = conflict; WARM = warmth; CLOSE = closeness. T = teacher report, C = child report, P = parent report; ^a Child gender is coded as 0 = girls, 1 = boys; ^b Generation status is coded as 0 = 1st generation, 1 = 2nd generation; ^c Grade is coded as 0 = 1st grade, 2 = 2nd grade, 3 = 3rd grade; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2 (Continued)

Variable	11	12	13	14	15	16	17	18	19	20
1. Child Gender ^a										
2. Generation Status ^b										
3. Grade ^c										
4. Mother's education										
5. Father's education										
6. Per capita Income										
7. EXT-W1 (P)										
8. EXT-W2 (P)										
9. EXT-W1 (T)										
10. EXT-W2 (T)										
11. INT-W1 (P)	--									
12. INT-W2 (P)	.56***	--								
13. INT-W1 (T)	.25***	.27***	--							
14. INT-W2 (T)	.14*	.23**	.36***	--						
15. CONF-W1 (T)	-.03	.02	.09	.01	--					
16. CONF-W2 (T)	.01	.11	-.02	.08	.54***	--				
17. WARM-W1 (T)	.01	-.07	-.21**	-.02	-.47***	-.26**	--			
18. WARM-W2 (T)	-.19**	-.08	-.17*	-.28***	-.39***	-.50***	.34***	--		
19. CLOSE-W1 (C)	.01	.01	.01	-.01	-.10**	-.02	.11***	.08	--	
20. CLOSE-W2 (C)	.02	.02	-.05	.02	-.21**	-.17*	.26***	.25***	.25***	--

Note. The *ns* for the correlations ranged from 199 to 256; EXT = externalizing problems; INT = internalizing problems; CONF = conflict; WARM = warmth; CLOSE = closeness. T = teacher report, C = child report, P = parent report; ^a Child gender is coded as 0 = girls, 1 = boys; ^b Generation status is coded as 0 = 1st generation, 1 = 2nd generation; ^c Grade is coded as 0 = 1st grade, 2 = 2nd grade, 3 = 3rd grade; * $p < .05$, ** $p < .01$, *** $p < .001$.

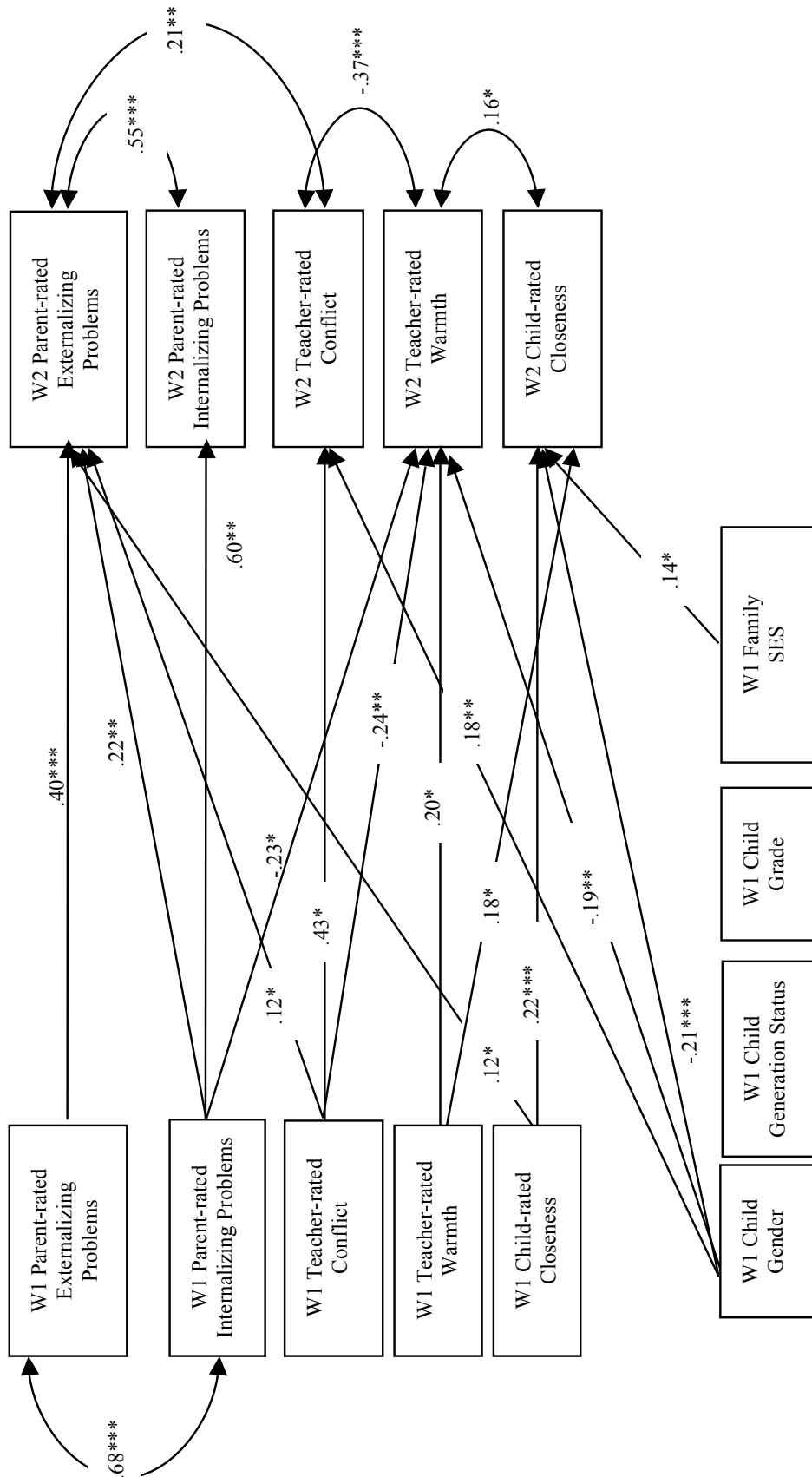


Figure 1. Model predicting bidirectional associations between parent-rated behavior problems and TCRQ. Numbers are path coefficients. Only significant paths are shown. W1 = Wave 1, W2 = Wave 2. * $p < .05$. ** $p < .01$. *** $p \leq .001$.

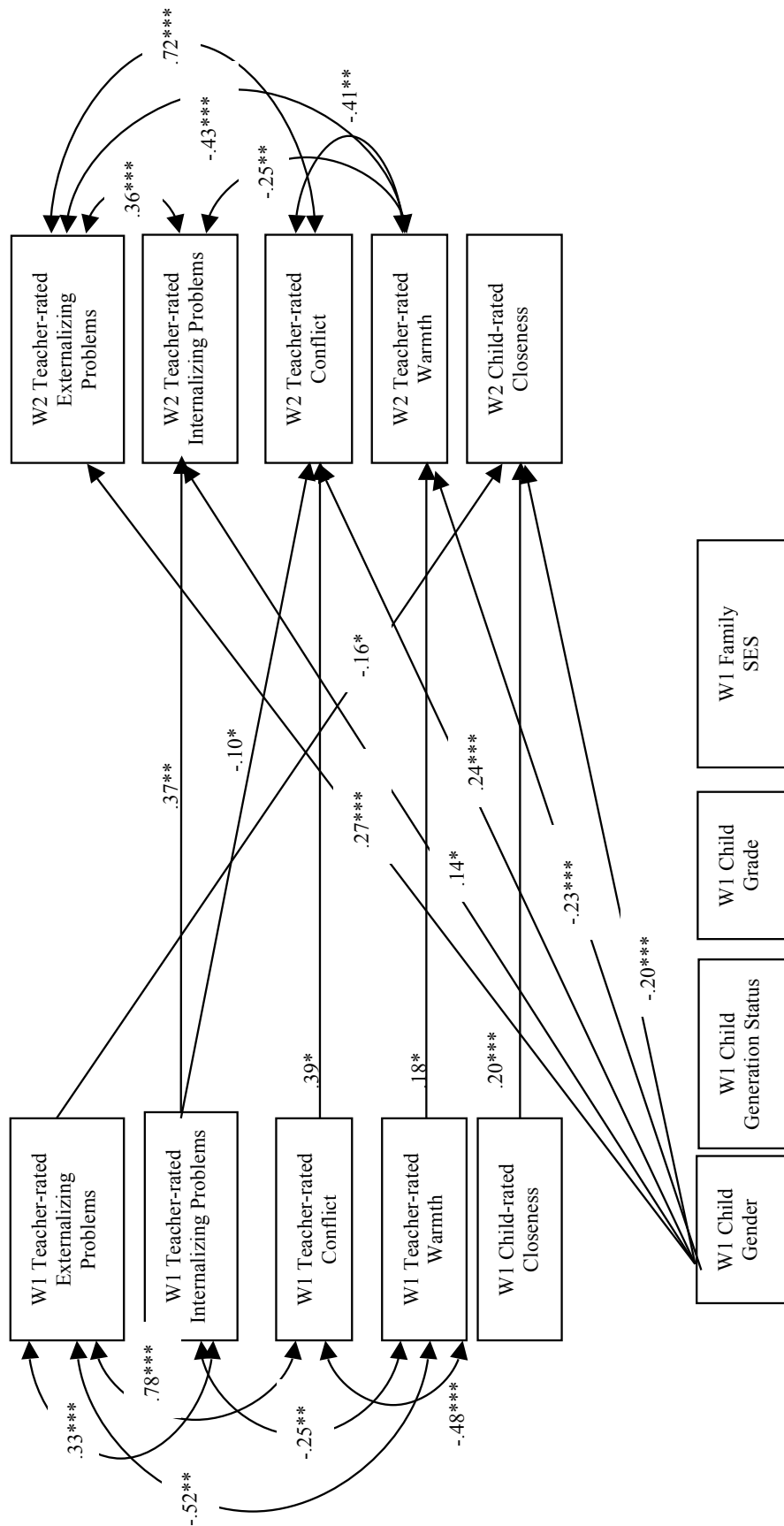


Figure 2. Model predicting bidirectional associations between teacher-rated behavior problems and TCRQ. Numbers are path coefficients. Only significant paths are shown. W1 = Wave 1, W2 = Wave 2. * $p < .05$. ** $p < .01$. *** $p \leq .001$.